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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Louis et al.  
PATENT NO.: 6,744,316 B2  
ISSUED: June 1, 2004  
ENTITLED: A METHOD AND APPARATUS FOR REDUCTION OF DISTORTION IN A TRANSMITTER



SERIAL NO.: 09/837,850  
FILED: April 19, 2001  
DOCKET NO.: CE08635R

Certificate of Mailing  
Date of deposit: June 18, 2004  
I hereby certify that this paper is being deposited with the United States Postal Service on the date indicated above, via First Class Mail with sufficient postage attached thereto, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.  
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REQUEST FOR A CERTIFICATE OF CORRECTION UNDER 37 CFR § 1.322

Commissioner for Patents  
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Certificate  
JUN 24 2004  
of Correction

Sir:

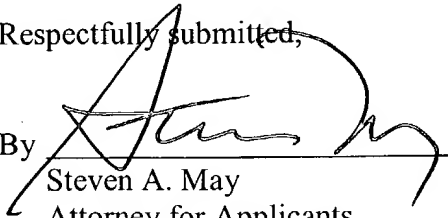
In accordance with the provisions of 37 CFR § 1.322 of the Rules of Practice, which implement 35 USC § 254, the Patent and Trademark Office is respectfully requested to issue a Certificate of Correction in the above-identified patent. It is certified that errors appear in the above-identified patent as shown in the attached Certificate of Correction. Applicant certifies that the errors are of a minor character and were not the fault of Applicant. Since the changes necessary to correct these errors in the patent would not constitute new matter, and would not require re-examination, Applicant prays a Certificate of Correction will issue. Since errors were not the fault of Applicant, it is believed that there will not be a fee for this Certificate of Correction.

25 JUN 2004

Motorola, Inc.  
Customer No.: 22917

Respectfully submitted,

By

A handwritten signature in black ink, appearing to read "Steven A. May", is written over a horizontal line.

Steven A. May  
Attorney for Applicants  
Registration No. 44,912  
Phone: 847-576-3635

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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO.: 6,744,316  
DATE: June 1, 2004  
INVENTOR(S): Louis et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

The title should read --A METHOD AND APPARATUS FOR REDUCTION OF DISTORTION IN A TRANSMITTER--

MAILING ADDRESS OF SENDER;  
Motorola Law Department  
1303 E. Algonquin Road  
IL01-3rd Floor  
Schaumburg, Illinois 60196

PATENT NO. 6,744,316 B2

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which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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25 JUN 2004



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(12) **United States Patent**  
**Louis et al.**

(10) **Patent No.:** **US 6,744,316 B2**  
(45) **Date of Patent:** **Jun. 1, 2004**

<sup>a</sup> (54) **METHOD AND APPARATUS FOR  
REDUCTION OF DISTORTION IN A  
TRANSMITTER**

(75) **Inventors:** **Edward Vincent Louis, St. Charles, IL  
(US); Michael David Leffel, Crystal  
Lake, IL (US)**

(73) **Assignee:** **Motorola, Inc., Schaumburg, IL (US)**

(\*) **Notice:** Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 24 days.

(21) **Appl. No.:** **09/837,850**

(22) **Filed:** **Apr. 19, 2001**

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US 2002/0153952 A1 Oct. 24, 2002

(51) **Int. Cl.<sup>7</sup>** ..... **H03F 1/26**

(52) **U.S. Cl.** ..... **330/151; 330/149**

(58) **Field of Search** ..... **330/149, 151;  
375/297**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,489,875 A \* 2/1996 Cavers ..... 330/151  
5,617,061 A \* 4/1997 Fukuchi ..... 330/151  
5,831,479 A 11/1998 Leffel et al. .... 330/124  
5,874,856 A 2/1999 Van Horn ..... 330/151

6,069,531 A \* 5/2000 Myer ..... 330/149  
6,104,241 A \* 8/2000 Cova et al. .... 330/149  
6,232,837 B1 \* 5/2001 Yoo et al. .... 330/151  
6,275,105 B1 \* 8/2001 Ghannouchi et al. .... 330/149  
6,417,731 B1 \* 7/2002 Funada et al. .... 330/151

**OTHER PUBLICATIONS**

James K. Cavers; "Adaptation Behavior of a Feedforward  
Amplifier Linearizer"; IEEE Transactions on Vehicular  
Technology, vol. 44, No. 1, Feb. 1995, pp. 31-39.

\* cited by examiner

*Primary Examiner*—Khanh Van Nguyen

(74) *Attorney, Agent, or Firm*—Steven A. May

(57) **ABSTRACT**

A transmitter includes a feed forward amplifier that includes  
main signal path having a radio frequency (RF) power  
amplifier, a feed forward correction circuit, and a control  
circuit. An amplification of an input signal by the RF power  
amplifier produces an amplified signal that includes a distortion  
component. The feed forward correction circuit produces  
an error signal, which error signal is used to drive an  
error amplifier to produce an amplified error signal. In order  
to minimize a distortion component introduced to the ampli-  
fied error signal by the error amplifier, the control circuit  
controls a peak power of the error signal based on a detected  
energy of an attenuated version of the error signal or based  
on the distortion component introduced to the amplified  
error signal by the error amplifier.

**12 Claims, 5 Drawing Sheets**

